DNSSEC Validation Performance Testing
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What is the performance hit on a typical ISP resolver if they would enable DNSSEC validation for .SE today?
Tested Software

- ISC BIND 9.3.2
- Nominum CNS 1.6.0.3
Test Setup

Query simulator

Test resolver

Internet

Dual AMD Opteron 2.4 GHz
FreeBSD/amd64 5.4

Intel Pentium III 1.4 GHz
FreeBSD/i386 4.9
Query Test Data

• 1 hour (15.00-16.00 MET) queries from customers of a large Swedish ISP.

• Queries recorded via tcpdump and anonymized using tcpreplay.

• Average query load 966 qps.
Test Methodology

• Query sent to test resolver using tcpreplay.

• 1st test with validation disabled.

• 2nd test with validation enabled.
Measurement

- Queries per seconds measured.
- Name server CPU time usage measured.
- queries / cpusec used as comparison.
Test Results

- CNS: BIND relative change 98%, CNS relative change 64%
- BIND: DNSSEC queries / cpusec
Observations
– Not Conclusions

• No major performance hit with BIND.
• CNS always faster than BIND, but is relatively slower than BIND when you enable DNSSEC.